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PATENT  
Docket No. 50142US010

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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APR 24 2003

Applicant(s): Joyce B. PALAZZOTTO et al.)

Group Art Unit: 3761

Serial No.: 10/067,141 )

Examiner:

Confirmation No.: 7314 )

A. Lewis TECHNOLOGY CENTER R3700

Filed: 4 February 2002 )

For: SPEECH TRANSMISSION ADAPTOR FOR USE WITH A RESPIRATOR MASK

APPELLANTS' BRIEF ON APPEAL

Assistant Commissioner for Patents  
Washington, DC 20231

Dear Sir:

This Brief is presented in support of the Appeal filed November 21, 2002, from the final rejection of claims 1-20 of the above-identified application under 35 U.S.C. § 112 and the denial of the Office to declare an interference from any of claims 1-20 with claims 1-20 of U.S. Patent No. 5,463,693 to Birli et al., as set forth in the Final Office Action dated July 22, 2002.

This Brief is being submitted in triplicate, as set forth in 37 C.F.R. § 1.192(a). Applicants hereby authorize a charge to Deposit Account No. 13-4895 in an amount sufficient to cover the fee for filing this Brief under 37 C.F.R. § 1.17(f).

I. REAL PARTY IN INTEREST

The real party in interest of the above-identified patent application is the assignee, 3M Innovative Properties Company.

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## **II. RELATED APPEALS AND INTERFERENCES**

There are no appeals or interferences known to Appellants' Representatives which will directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

## **III. STATUS OF CLAIMS**

Claims 1-20 are rejected and are the subject of this Appeal (see Appendix A).

## **IV. STATUS OF AMENDMENTS**

The present application is a continuation application of U.S. Patent Application No. 08/940,266 filed September 29, 1997, which is a continuation of U.S. Patent Application No. 08/494,305 filed June 23, 1995, which is a continuation of U.S. Patent Application No. 08/130,299 filed October 1, 1993.

The present application was filed with claims 1-20 that were largely copied from U.S. Patent No. 5,463,693 to Birli et al. (as indicated with a separate Communication filed concurrently with the application). The claims in the present application that were not copied verbatim include claims 7, 12, 16, 19 and 20. Claims 1-6, 8-11, 13-15, 17, and 18 are identical to the corresponding claims in Birli et al.

Claim 12 was amended in a response filed on April 22, 2002 addressing the rejections set forth in an Office Action dated March 21, 2002. As amended, claim 12 is a verbatim copy of claim 12 of Birli et al. The rejections set forth in that Office Action included a rejection of claims 1-20 under 35 U.S.C. § 112, first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In the March 21, 2002 Office Action, the Examiner also refused to declare an interference between the present application and Birli et al. Among the reasons for that refusal was Applicants' failure to indicate where support could be found in the present application for claims

1-20. Applicants' response of April 22, 2002 included a detailed chart (Appendix B) identifying where claims 1-20 were supported by the application as filed.

A final Office Action dated July 22, 2002 issued in which the 35 U.S.C. § 112 rejection was maintained and the refusal to declare an interference was repeated.

Applicants filed a response on October 21, 2002, presenting arguments as to why the 35 U.S.C. § 112 rejection was improper and why an interference should be declared between the present application and Birli et al. No further claim amendments were presented.

An Advisory Action issued on November 18, 2002 maintaining the rejection and the refusal to declare an interference.

As indicated above, Applicants filed a Notice of Appeal on November 21, 2002.

## **V. SUMMARY OF THE INVENTION**

The present invention is directed to respirators including microphones to improve the ability of an individual wearing a respirator to communicate with others without removing the respirator from its use position over the mouth of the individual.

All of pending claims are found in Appendix A (attached).

Support for the inventions recited in claims 1-20 can be found in the locations identified in the tables of Appendix B (attached).

## **VI. ISSUE(S) PRESENTED FOR REVIEW**

1. Whether, under 35 U.S.C. § 112, first paragraph, claims 1-20 contain subject matter that is described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

2. Whether a declaration of interference between the present application and U.S. Patent No. 5,463,693 to Birli et al. is proper.

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## **VII. GROUPING OF CLAIMS**

For the purpose of this appeal, claims 1-18 stand or fall together and claims 19-20 stand or fall together.

## **VIII. ARGUMENT**

### **A. The subject matter of claims 1-18 is described, according to the requirements of 35 U.S.C. § 112, first paragraph.**

Claims 1-18 were rejected under 35 U.S.C. §112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully submit that this rejection is in error and cannot properly be sustained.

When determining patentability, "claims are to be given their broadest reasonable interpretations . . . . Moreover, limitations are not to be read into the claims from the specification." *In re Van Geuns*, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993). Applicants submit that the Examiner has failed to follow either of these rules, i.e., the claims have not been given their broadest reasonable interpretation (consistent with the specification) and limitations have been read into the claims from the specification.

As support for this rejection the Examiner asserted that the language ". . . said spacer further having a microphone extending therefrom . . . " is not supported by the specification as originally filed. Applicants disagree, noting that the microphone (74) is depicted as extending from the housing (70) of the speech transmission adaptor (50) in both Figures 5 & 6 of the present application. In other words, the present application discloses a speech transmission adaptor/spacer (50) having a microphone (74) "extending therefrom" as recited in claims 1-18 of the present application.

In an attempt to support the written description rejection, the Examiner characterized the present application as disclosing a "microphone being situated within the confines of the spacer," relying on Figures 5 & 6 of the present application. The Examiner compared that arrangement

with Figure 2 of Birli et al. "which illustrates microphone 20 extending THEREFROM." Under the Examiner's interpretation, the phrase "a microphone extending therefrom" as it appears in the claims requires that the microphone extend outside the theoretical boundaries defined by the housing (70) of the speech transmission adaptor/spacer (50). Those limitations are not, however recited in claims 1-18 of the present application, but are, instead, being read into the claims by the Examiner.

The Examiner's reliance on Figure 2 of Birli et al. raises the issue as to whether claims 1-18 are ambiguous with respect to the meaning of the phrase "extending therefrom" (although Applicants note that the Examiner fails to explicitly raise that argument in presenting this rejection).

If it was the Examiner's intent to raise the issue of ambiguity in the claims, his reliance on the specification of Birli et al. to establish the ambiguity is misplaced because "[r]esort to a disclosure has the limited purpose of resolving an ambiguity – not of creating one." *Davis v. Loesch*, 27 USPQ2d 1440, 1445 (Fed. Cir. 1993). Here, Applicants' specification discloses a speech transmission adaptor/spacer (50) having a microphone (74) "extending therefrom" within the broadest reasonable interpretation of claims 1-18. Any assertion to the contrary by the Examiner is supported only by reference to the disclosure of Birli et al. – and that is not the proper basis for the rejection as set forth in *Davis v. Loesch*.

Given the above, Applicants submit that the rejection of claims 1-18 under 35 U.S.C. § 112 cannot be maintained and request reversal of the rejection by the Board.

**B. The subject matter of claims 19 & 20 is described, according to the requirements of 35 U.S.C. § 112, first paragraph.**

Claims 19 & 20 were also rejected under 35 U.S.C. §112, first paragraph, as containing subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully submit that this rejection is in error and cannot properly be sustained.

As support for this rejection the Examiner asserted that the language ". . . said spacer further having a microphone extending therefrom and into an interior of said face mask. . . " is not supported by the specification as originally filed. Applicants note, however, that the portion "and into an interior of said face mask" of that phrase does not appear in either claim 19 or claim 20 of the present application.

Rather, independent claims 19 & 20 both recite ". . . said spacer further having a microphone extending therefrom and into a clean air envelope of said face mask . . . ." The "clean air envelope" is explicitly defined in the present application. "The respirator mask defines a clean air envelope between the body of the respirator mask and the face of the wearer bounded by the sealing portion of the respirator mask, the clean air source [if any] and the exhalation port." *Specification*, p. 4, ll. 19-21. As a result, claims 19 & 20 are fully and explicitly supported by the application as filed.

For the reasons presented above, Applicants submit that the rejection of claims 19-20 under 35 U.S.C. § 112 cannot be maintained and request reversal of the rejection by the Board.

**C. A declaration of interference between the present application and U.S. Patent No. 5,463,693 to Birli et al. is proper.**

Applicants submit that the Examiner's refusal to declare an interference in the present application with U.S. Patent No. 5,463,693 (Birli et al.) is also in error and cannot be maintained.

On page 3 of the Office Action, the Examiner cites 37 C.F.R. § 1.606 in support of his refusal to declare an interference asserting "that the claim be patentable to the applicant subject to a judgement [*sic*] in the interference."

The Examiner then addresses only claims 7, 16, 19 and 20 with a discussion as to the differences between those claims and the corresponding claims of Birli et al. The only reasoning presented as to why claims 1-6, 8-15, 17, and 18 cannot form a basis for declaration of an interference is essentially the same as that presented in support of the rejection of claims 1-20 under 35 U.S.C. § 112. As discussed above with respect to the § 112 rejection, however,

Applicants submit that claims 1-6, 8-15, 17, and 18 are fully supported by the present application as filed and, furthermore, the claims do properly form the basis for declaration of an interference.

In one addition from the reasoning presented in connection with the § 112 rejection, the Examiner's interference analysis concludes with the assertion that "a reading of the claim language in light of the specification and drawings of patent ('693) reveals that the microphone has only one intended orientation which is within the interior of the face mask." The claims, however, do not recite those limitations and it is improper to read limitations, intended or otherwise, into the claims as asserted by the Examiner.

"[W]hen an applicant selects language which is somewhat broad in scope, he takes the risk that others with specifically different structures may be able to meet the language selected. . . ." *Woods v. Tsuchiya*, 225 USPQ 11, 15 (Fed. Cir. 1985). In the present case, the patentee chose to use the broad language "extending therefrom" and must now be held to the broadest reasonable interpretation of that language.

For these reasons alone, Applicants respectfully submit that at least claims 1-6, 8-15, 17, and 18 can and do form a proper basis for the declaration of an interference between the present application and Birli et al.

With respect to claims 19 & 20, the Examiner asserts that "[t]he term 'clean air envelope' is not an equivalent substitute for the term 'interior space' as used in patent '693 [Birli et al.]." As support for that position, the Examiner provides another assertion that the "interior space" [of said face mask] in patent '693 defines space within the face mask exclusive of the space within the spacer 18." The only support provided for that assertion is a citation to portions of claim 19. Applicants note, however, that no definition of the term "interior space" is provided by claim 19. Furthermore, the specification of Birli et al. does not explicitly define the term "interior space."

In the background section, however, Birli et al. does distinguish the claimed invention from prior art devices in which microphones are located "outside of the mask." Birli et al. note that a disadvantage of locating the microphone "outside of the mask" is that "the microphone must pick up the wearer's voice after it has passed through the valve in its muffled state." *Birli et al.*, Col. 1, ll. 32-35. In other words, Birli et al. distinguish the interior of the mask from the

outside of the mask by whether a valve is located between the mouth of the wearer and the microphone. In other words, if the microphone is located on the same side of the valve as is the mouth of the wearer it is in the interior of the mask.

Referring to Figure 6 of the present application, we note that the valve diaphragm (68) is located on the opposite side of the microphone (74) from the mouth of the wearer. Thus, applying the arguments presented by Birli et al. to distinguish the interior of a mask from the outside of a mask, the microphone (74) depicted of Figure 6 is located within the interior of the mask. Furthermore, such a location places the microphone within the "clean air envelope" as recited in claims 19 and 20 and defined by the present application.

For the above reasons, Applicants submit that the assertion that the "terms 'clean air envelope' and 'interior space' are not interchangeable equivalent elements" is not supported by a plain reading of the present application and Birli et al.

As a result, Applicants respectfully submit that claims 19 & 20 also form a proper basis for the declaration of an interference between the present application and Birli et al.



## **IX. SUMMARY**

It is respectfully submitted that claims 1-20 are fully supported according to the requirements of 35 U.S.C. § 112. It is earnestly requested that the Board reverse the Examiner's rejection, and that all of the claims be allowed. Furthermore, Applicants also submit the declaration of an interference is proper and request that the Board direct the Examiner to declare an interference between the present application and Birli et al.

Respectfully submitted for  
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### **CERTIFICATE UNDER 37 CFR §1.10::**

"Express Mail" mailing label number: EV 073 735 524 US

Date of Deposit: April 21, 2003

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR §1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

By: 

Name: SAM HER

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**APPENDIX A – PENDING CLAIMS**  
**Serial No.: 10/067,141**  
**Docket No.: 50142 US 010**

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1. A protective respirator, comprising:
  - a face mask having an inhalation port through which a wearer of the mask inhales ambient air;
  - an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;
  - a microphone assembly which is removably detachable from a location between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port, said spacer having a body with a passage extending the entire length thereof through which filtered air may pass from said filter to said inhalation port, said spacer further having a microphone extending therefrom;
  - an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal; and
  - a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.
2. The protective respirator of claim 1, wherein said amplifier and said loudspeaker form a combined amplifier/loudspeaker assembly.
3. The protective respirator of claim 2, wherein said combined amplifier/loudspeaker assembly is located remote from said face mask.
4. The protective respirator of claim 3, wherein said combined amplifier/loudspeaker assembly is provided with a means for attaching said amplifier/loudspeaker assembly to a portion of the wearer's clothing.
5. The protective respirator of claim 3, wherein said spacer of said microphone assembly provides an airtight seal between said filter and said face mask.

6. The protective respirator of claim 1, wherein said spacer is provided with an inhale diaphragm, and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.

7. The protective respirator of claim 6, wherein said spacer is constructed of a plastic material.

8. The protective respirator of claim 7, wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the air filter.

9. The protective respirator of claim 2, further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.

10. A voice transmission system for a protective respirator comprising (i) a face mask having an inhalation port through which a wearer of the mask inhales ambient air; and (ii) an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port, said voice transmission system comprising:

a microphone assembly which is removably detachable from a location between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port, said spacer having a body with a passage extending the entire length thereof through which filtered air may pass from said filter to said inhalation port, said spacer further having a microphone extending therefrom;

an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal; and

a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.

11. The voice transmission system of claim 10, wherein said amplifier and said

loudspeaker form a combined amplifier/loudspeaker assembly.

12. The voice transmission system of claim 11, wherein said combined amplifier/loudspeaker assembly is located remote from said face mask.

13. The voice transmission system of claim 12, wherein said combined amplifier/loudspeaker assembly is provided with a means for attaching said amplifier/loudspeaker assembly to a portion of a wearer's clothing.

14. The voice transmission system of claim 12, wherein said spacer of said microphone assembly provides an airtight seal between said filter and said face mask.

15. The voice transmission system of claim 14, wherein said spacer is provided with an inhale diaphragm, and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.

16. The voice transmission system of claim 15, wherein said spacer is constructed of a plastic material.

17. The voice transmission system of claim 16, wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the air filter.

18. The voice transmission system of claim 10, further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.

19. A protective respirator, comprising:  
a face mask having an inhalation port through which a wearer of the mask inhales

ambient air;

an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;

a microphone assembly located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom and into a clean air envelope of said face mask, said spacer providing an airtight seal between said filter and said face mask, said spacer having (i) a first outer surface facing an outer surface of said face mask, and (ii) a second outer surface facing an outer surface of said filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer surface, respectively, are provided with complementary geometrical configurations which mate with each other; and

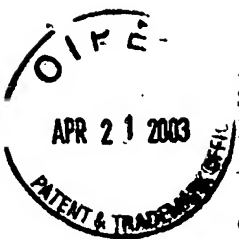
an amplifier/loudspeaker assembly located remote from said microphone and including (i) an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal, and (ii) a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.

20. A voice transmission system for a protective respirator including (i) a face mask having an inhalation port through which a wearer of the mask inhales ambient air; and (ii) an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port, said voice transmission system comprising:

a microphone assembly adapted to be located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom into a clean air envelope of said face mask, said spacer providing an airtight seal between said filter and said face mask, said spacer having (i) a first outer surface facing an outer surface of the face mask, and (ii) a second outer surface facing an outer surface of the filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer surface, respectively, are provided with complementary geometrical configurations which mate with

each other; and

an amplifier/loudspeaker assembly located remote from said face mask and comprising (i) an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal, and (ii) a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.

**APPENDIX B – CLAIM CHART**

Serial No.: 10/067,141

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**Claim 1**

a protective respirator, comprising:	Throughout the application, e.g., Figs. 1 & 2.
a face mask having an inhalation port through which a wearer of the mask inhales ambient air;	Page 8, lines 20-28; Figs. 1 & 2.
an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;	Page 8, lines 6-14 and lines 23-25; Figs. 1 & 2.
a microphone assembly which is removably detachable from a location between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port, said spacer having a body with a passage extending the entire length thereof through which filtered air may pass from said filter to said inhalation port, said spacer further having a microphone extending therefrom;	Page 9, line 8 to page 10, line 7; Page 11, lines 1-10; Figs. 3-6.
an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal; and	Page 11, lines 16-19.
a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.	Page 11, lines 16-19.

**Claim 2:**

the protective respirator of claim 1,	See Table for Claim 1.
wherein said amplifier and said loudspeaker form a combined amplifier/loudspeaker assembly.	Page 11, lines 16-19.

**Claim 3:**

the protective respirator of claim 2,	See Tables for Claims 1 & 2.
wherein said combined amplifier/loudspeaker assembly is located remote from said face mask.	Page 11, lines 16-19.

**Claim 4:**

the protective respirator of claim 3,	See Tables for Claims 1-3.
wherein said combined amplifier/loudspeaker assembly is provided with a means for attaching said amplifier/loudspeaker assembly to a portion of the wearer's clothing.	Page 11, lines 16-19.

**Claim 5:**

the protective respirator of claim 3,	See Tables for Claims 1-3.
wherein said spacer of said microphone assembly provides an airtight seal between said filter and said face mask.	Page 12, lines 3-7 and lines 12-18.

**Claim 6:**

the protective respirator of claim 1,	See Table for Claim 1.
wherein said spacer is provided with an inhale diaphragm,	Page 12, lines 8-11 and lines 24-31; Fig. 6.
and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.	Page 11, line 20 to page 12, line 2; Page 12, lines 8-11 and lines 24-31; Figs. 5 & 6.

**Claim 7:**

the protective respirator of claim 6,	See Tables for Claims 1 & 6.
wherein said spacer is constructed of a plastic material.	Page 11, lines 2-4.

**Claim 8:**

the protective respirator of claim 7,	See Tables for Claims 1, 6, & 7.
wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the air filter.	Page 11, line 20 to page 12, line 2; Page 12, lines 12-23; Figs. 5 & 6.



**Claim 9:**

the protective respirator of claim 2,	See Tables for Claims 1 & 2.
further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.	Page 11, lines 6-15.

**Claim 10:**

a voice transmission system for a protective respirator, comprising:	Throughout the application, e.g., Figs. 1 & 2.
(i) a face mask having an inhalation port through which a wearer of the mask inhales ambient air; and	Page 8, lines 20-28; Figs. 1 & 2.
(ii) an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port, said voice transmission system comprising:	Page 8, lines 6-14 and lines 23-25; Figs. 1 & 2.
a microphone assembly which is removably detachable from a location between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port, said spacer having a body with a passage extending the entire length thereof through which filtered air may pass from said filter to said inhalation port, said spacer further having a microphone extending therefrom;	Page 9, line 8 to page 10, line 7; Page 11, lines 1-10; Figs. 3-6.
an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal; and	Page 11, lines 16-19.
a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.	Page 11, lines 16-19.

**Claim 11:**

the voice transmission system of claim 10,	See Table for Claim 10.
wherein said amplifier and said loudspeaker form a combined amplifier/loudspeaker assembly.	Page 11, lines 16-19.

**Claim 12:**

the voice transmission system of claim 11,	See Tables for Claims 10 & 11.
wherein said combined amplifier/loudspeaker assembly is located remote from said face mask.	Page 11, lines 16-19.

**Claim 13:**

the voice transmission system of claim 12,	See Tables for Claims 10-12.
wherein said combined amplifier/loudspeaker assembly is provided with a means for attaching said amplifier/loudspeaker assembly to a portion of the wearer's clothing.	Page 11, lines 16-19.

**Claim 14:**

the voice transmission system of claim 12,	See Tables for Claims 10-12.
wherein said spacer of said microphone assembly provides an airtight seal between said filter and said face mask.	Page 12, lines 3-7 and lines 12-18.

**Claim 15:**

the voice transmission system of claim 14,	See Tables for Claims 10-12 & 14.
wherein said spacer is provided with an inhale diaphragm,	Page 12, lines 8-11 and lines 24-31; Fig. 6.
and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.	Page 11, line 20 to page 12, line 2; Page 12, lines 8-11 and lines 24-31; Figs. 5 & 6.

**Claim 16:**

the voice transmission system of claim 15,	See Tables for Claims 10-12, 14 & 15.
wherein said spacer is constructed of a plastic material.	Page 11, lines 2-4.

**Claim 17:**

the voice transmission system of claim 16,	See Tables for Claims 10-12 & 14-16.
wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the air filter.	Page 11, line 20 to page 12, line 2; Page 12, lines 12-23; Figs. 5 & 6.

**Claim 18:**

the voice transmission system of claim 10,	See Table for Claim 10.
further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.	Page 11, lines 6-15.

**Claim 19:**

a protective respirator, comprising:	Throughout the application, e.g., Figs. 1 & 2.
a face mask having an inhalation port through which a wearer of the mask inhales ambient air;	Page 8, lines 20-28; Figs. 1 & 2.
an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;	Page 8, lines 6-14 and lines 23-25; Figs. 1 & 2.
a microphone assembly located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom and into a clean air envelope of said face mask,	Page 9, line 8 to page 10, line 7; Page 11, lines 1-10; Figs. 3-6.
said spacer providing an airtight seal between said filter and said face mask,	Page 12, lines 3-7 and lines 12-18.
said spacer having (i) a first outer surface facing an outer surface of said face mask, and (ii) a second outer surface facing an outer surface of said filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer surface, respectively, are provided with complementary geometrical configurations which mate with each other;	Page 11, line 20 to page 12, line 2; Page 12, lines 8-31; Figs. 5 & 6.
an amplifier/loudspeaker assembly located remote from said microphone and including (i) an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal, and (ii) a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.	Page 11, lines 16-19.

**Claim 20:**

a voice transmission system for a protective respirator including	Throughout the application, e.g., Figs. 1 & 2.
a face mask having an inhalation port through which a wearer of the mask inhales ambient air;	Page 8, lines 20-28; Figs. 1 & 2.
an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;	Page 8, lines 6-14 and lines 23-25; Figs. 1 & 2.
a microphone assembly located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom into a clean air envelope of said face mask,	Page 9, line 8 to page 10, line 7; Page 11, lines 1-10; Figs. 3-6.
said spacer providing an airtight seal between said filter and said face mask,	Page 12, lines 3-7 and lines 12-18.
said spacer having (i) a first outer surface facing an outer surface of said face mask, and (ii) a second outer surface facing an outer surface of said filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer surface, respectively, are provided with complementary geometrical configurations which mate with each other;	Page 11, line 20 to page 12, line 2; Page 12, lines 8-31; Figs. 5 & 6.
an amplifier/loudspeaker assembly located remote from said microphone and including (i) an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal, and (ii) a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.	Page 11, lines 16-19.